

## CLIMATOLOGICAL TABLES.\*

## CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given for the various sections of the climatological service of the Weather Bureau the monthly average temperature and total rainfall; the stations reporting the highest and lowest temperatures, with dates of occurrence; the stations reporting the greatest and least total precipitation; and other data as indicated by the several headings.

The mean temperature for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperatures and precipitation are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

*Condensed climatological summary of temperature and precipitation, by sections, August, 1919.*

Section.	Temperature.								Precipitation.							
	Section average.	Departure from the normal.	Monthly extremes.						Section average.	Departure from the normal.	Greatest monthly.				Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.			Station.	Amount.	Station.	Amount.	Station.	Amount.
Alabama.....	° F.	° F.	Guin.....	103	7	Oneonta.....	51	27	7.55	+3.08	Citronelle.....	14.43	Guin.....	3.53		
Arizona.....	79.2	-0.4	2 stations.....	118	13†	Fort Valley.....	41	5	2.23	-0.06	Ideal Ranger Station	5.04	Lepapp.....	0.00		
Arkansas.....	79.5	+1.0	Bee Branch.....	113	5	4 stations.....	55	19†	4.29	+0.50	Hope.....	10.24	Calico Rock.....	1.16		
California.....	80.6	+1.3	Greenland Ranch.....	123	20	Portola.....	25	1†	0.33	-0.35	Rose Mine.....	3.37	158 stations.....	0.00		
Colorado.....	72.1	-0.7	Burlington.....	107	23	Dillon.....	25	22†	1.39	-0.50	Victor.....	3.98	Springfield.....	0.09		
Florida.....	66.4	+1.8	Eustis.....	101	6	De Funak Springs.....	60	29	6.67	-0.38	Pensacola.....	16.69	Key West.....	1.46		
Georgia.....	81.7	+0.4	Rome.....	103	7	2 stations.....	52	27	5.81	+0.39	Leesburg.....	14.18	Gillsville.....	1.60		
Hawaii (July).....	74.2	+0.4	Mahukona.....	94	4	Glenwood.....	49	15	4.21	-1.03	Honomanu Valley.....	18.47	2 stations.....	0.00		
Idaho.....	66.8	+2.4	Weiser.....	106	17†	Elk City.....	24	30	0.26	-0.24	Priest River.....	1.52	7 stations.....	0.00		
Illinois.....	73.6	-0.4	3 stations.....	105	6	2 stations.....	44	10†	2.89	-0.46	Winton.....	8.12	Aurora.....	0.35		
Indiana.....	72.6	-0.6	Greencastle.....	103	7	La Porte.....	39	7	2.35	-0.97	Paoli.....	5.64	Dam No. 39.....	0.69		
Iowa.....	71.5	-0.3	Clarinda.....	103	6	3 stations.....	38	31	2.59	-1.09	Maquoketa.....	5.72	Sioux Center.....	0.97		
Kansas.....	78.3	+1.2	Minneapolis.....	111	6	Alton.....	45	31	1.91	-1.39	Ottawa.....	6.08	Hoxie.....	0.03		
Kentucky.....	75.0	-0.7	Bowling Green.....	104	6	2 stations.....	47	25	3.49	-0.07	2 stations.....	6.98	Maysville.....	0.84		
Louisiana.....	82.8	+1.1	Plain Dealing.....	104	8	Calhoun.....	62	31	5.11	-0.14	Plain Dealing.....	9.62	Melville.....	1.05		
Maryland-Delaware.....	72.0	-1.4	Frederick, Md.....	96	24	Oakland, Md.....	39	29	6.06	+1.72	Denton, Md.....	12.99	Frederick, Md.....	1.66		
Michigan.....	66.4	+0.5	Harrisville.....	97	7	Houghton Lake (near).....	26	29	2.33	-0.50	Webber Dam.....	4.26	Osceola Site.....	0.39		
Minnesota.....	67.2	+0.5	Beardsley.....	99	14	3 stations.....	32	27†	3.11	-0.47	Winnibigoshish.....	10.08	Tyler.....	0.15		
Mississippi.....	81.2	+0.9	3 stations.....	105	7	Okolona.....	57	31	6.23	+1.81	Meridian.....	12.10	Grenshaw.....	1.29		
Missouri.....	75.7	-0.5	Caruthersville.....	106	6†	Bethany.....	41	31	4.29	+0.49	Lamonte.....	11.27	Springfield.....	0.53		
Montana.....	67.1	+2.7	Glasgow.....	104	31	Bowen.....	14	29	0.62	-0.59	Outlook.....	1.95	Virginia City.....	0.00		
Nebraska.....	73.3	+0.5	2 stations.....	106	3	Gordon.....	33	30	1.51	-1.27	Schuyler.....	6.88	Scottsbluff.....	0.09		
Nevada.....	72.6	+3.9	2 stations.....	111	14†	2 stations.....	32	2†	0.09	-0.29	Searchlight.....	0.98	16 stations.....	0.00		
New England.....	64.7	-2.1	Bridgeport, Conn.....	92	24	Somerset, Vt.....	24	9	3.91	+0.07	Bridgeport, Conn.....	9.50	Houlton, Me.....	0.46		
New Jersey.....	70.0	-2.0	Clayton.....	98	24	Charlotteburg.....	35	30	6.89	+2.23	Woodbine.....	12.88	Layton.....	3.09		
New Mexico.....	71.3	+0.8	Artesia.....	110	15	Elizabethtown.....	31	28	1.81	+0.66	Batemans Ranch.....	4.82	Lakewood.....	0.00		
New York.....	65.8	-1.5	West Point.....	100	29	Gabriels.....	25	9	3.84	+0.10	Searslake.....	8.16	Morrisville.....	0.65		
North Carolina.....	75.1	-0.2	Caroileen.....	99	7	2 stations.....	42	27	3.98	-1.96	Gorge.....	10.09	Marshall.....	1.15		
North Dakota.....	67.8	+2.4	2 stations.....	101	19	Hannah.....	30	27	1.62	-0.66	Hillsboro.....	5.65	Bierman.....	0.04		
Ohio.....	70.5	-1.1	2 stations.....	99	5	Haydenville.....	39	28	4.46	+1.55	Norwalk.....	9.23	Xenia.....	0.72		
Oklahoma.....	82.3	+1.4	2 stations.....	110	6†	Beaver.....	50	24†	3.17	-0.16	Broken Bow.....	9.10	Hooker.....	0.25		
Oregon.....	67.4	+1.6	Grants Pass.....	106	15	Fremont.....	22	22	0.14	-0.37	Government Camp.....	0.80	14 stations.....	0.00		
Pennsylvania.....	68.2	-1.7	4 stations.....	94	5†	2 stations.....	35	9†	5.43	+1.33	Lycippus.....	12.03	Girardville.....	2.35		
Porto Rico.....	70.1	-0.1	3 stations.....	96	6†	Juncos.....	59	22	3.64	+0.10	Sears-lake.....	8.16	Morrisville.....	0.65		
South Carolina.....	78.5	-0.4	Santuck.....	103	8	Landrum.....	53	27	5.08	-0.99	Gorge.....	10.09	Marshall.....	1.15		
South Dakota.....	70.9	+0.8	3 stations.....	105	5†	Cottonwood.....	34	24	0.19	-1.50	Tyndall.....	3.21	Greenmont.....	0.03		
Tennessee.....	76.9	+0.5	Brownsville.....	104	7	Mountain City.....	42	26	5.15	+1.17	Waynesboro.....	10.74	Memphis.....	0.82		
Texas.....	82.1	-0.4	Midland.....	111	16	Dalhart.....	53	23†	3.44	+1.03	Kerrville.....	14.34	3 stations.....	0.00		
Utah.....	71.0	+2.2	St. George.....	100	24	Black's Fork.....	27	12†	0.88	-0.14	Monticello.....	2.80	2 stations.....	0.00		
Virginia.....	72.7	-1.4	2 stations.....	98	7†	Burkes Garden.....	39	28	2.88	-1.55	Warsaw.....	5.57	Hawfield.....	0.58		
Washington.....	66.0	+0.9	Trinidad.....	105	18	Wilbur.....	29	31	0.34	-0.50	Snowqualmie Pass.....	1.70	6 stations.....	0.00		
West Virginia.....	70.2	-1.7	2 stations.....	100	5†	Brandywine.....	40	29	4.54	+0.75	Camden-on-Gauley.....	8.67	Upper Tract.....	0.95		
Wisconsin.....	66.7	-0.1	Delavan.....	97	4	Big St. Germain Dam.....	31	9	2.67	-0.72	Spooner.....	5.36	Madison.....	0.89		
Wyoming.....	65.8	+1.8	Clermont.....	102	31	Moran.....	20	30	0.42	-0.69	2 stations.....	1.40	3 stations.....	0.00		

\* For explanation of the following tables and charts, see this REVIEW, January, 1919, pp. 52-53.

† Other dates also.

## MONTHLY WEATHER REVIEW.

AUGUST, 1919

TABLE I.—Climatological data for Weather Bureau Stations, August, 1919.

Districts and stations.	Elevation of instruments.		Pressure.		Temperature of the air.										Precipitation.		Wind.							
	Barometer above sea level.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + r.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean relative humidity at dew-point.	Total.	Days with 0.1 inch or more.	Total movement.	Prevailing direction.	Miles per hour.	Maximum velocity.		
	Ft.	Ft.	Ft.	In.	In.	In.	° F.	° F.	° F.		° F.	° F.		° F.	° F.	%	In.	In.	Miles					
<i>New England.</i>							65.5	-1.5	79	23	65	47	10	51	27	55	53	87	2.98 - 0.3	10	5,751 s.	32 se.	30	6 10 15 6.7
Eastport.	76	67	85	29.85	29.93	- .03	58.2	-1.5	81	21	70	39	12	51	35	78	3.1	1.85 - 1.7	13	5,728 s.	32 ne.	14	8 13 10 5.7	
Greenville, Me.	1,070	6	28	78.29	79.94	- .03	60.8	-2.2	83	71	49	39	12	51	35	78	1.85	1.7 - 1.6	13	5,728 s.	26 nw.	24	11 11 9 5.3	
Portland, Me.	103	82	117	29.83	29.95	- .03	64.0	-2.2	83	71	49	39	12	51	35	78	1.80	2.1 - 2.1	12	2,998 n.w.	30 s.	17	3 10 18 7.1	
Concord.	238	79	29.84	29.95	- .03	64.7	-1.9	85	54	76	39	12	51	38	78	1.81	1.1 - 1.1	14	6,441 s.	29 s.	30	2 15 14 6.1		
Burlington.	404	11	48	29.49	29.91	- .06	65.0	-1.1	87	51	74	46	12	56	39	78	2.40	1.5 - 1.5	16	4,661 s.	28 s.	30	8 13 10 6.1	
Northfield.	876	12	60	29.95	- .03	61.5	-1.4	85	52	75	37	12	50	41	80	2.40	+ 1.0	11	6,732 w.	28 s.	30	8 13 10 6.1		
Boston.	125	151	188	29.81	29.94	- .05	68.8	-1.0	90	24	76	55	10	61	24	63	58	52	5.75	11 10,265 sw.	49 c.	14	10 9 12 5.7	
Nantucket.	12	14	90	29.94	29.95	- .04	67.0	-1.0	82	23	73	55	17	61	18	63	61	57	7.17 + 4.1	11 10,590 sw.	56 ne.	14	10 6 15 6.5	
Block Island.	26	11	46	29.82	29.95	- .04	66.9	-1.8	81	24	76	52	10	60	27	62	58	54	4.87 + 1.4	11 10,590 nw.	36 nw.	2	11 11 9 5.4	
Providence.	160	215	251	29.78	29.95	- .04	67.9	-3.1	91	24	76	52	10	59	27	62	58	54	3.14 + 1.1	10 7,879 sw.	27 sc.	17	7 11 13 6.0	
Hartford.	159	122	140	29.77	29.94	- .05	68.0	-0.9	91	24	76	51	10	59	27	62	59	53	3.03 + 1.5	12 4,731 sw.	34 nc.	14	16 6 9 4.9	
New Haven.	106	117	155	29.84	29.95	- .04	68.6	-1.5	91	24	76	53	28	61	24	63	59	74	7.02 + 2.0	14 5,973 sw.			5.3	
<i>Middle Atlantic States.</i>							71.7 - 0.9									76	5.30 + 0.8							
Albany.	97	102	115	29.83	29.93	- .05	68.3	-1.2	88	24	77	52	10	60	27	62	59	76	4.60 + 0.6	11 4,258 s.	23 sw.	19	15 8 8 4.9	
Binghamton.	871	10	68	29.02	29.94	- .05	66.2	-1.3	88	7	76	45	10	58	33	63	60	74	7.74 + 3.2	11 10,672 nw.	28 nw.	24	7 11 13 6.4	
New York.	314	414	454	29.61	29.94	- .06	70.2	-2.2	89	24	77	56	14	63	23	63	59	74	7.47 + 0.2	11 3,630 w.	21 n.	8 13 7 11 5.2		
Harrisburg.	374	94	104	29.57	29.96	- .05	71.0	-1.1	89	24	80	54	25	62	25	63	59	71	4.07 + 0.2	10 6,345 nw.	47 ne.	14 9 14 5.3		
Philadelphia.	117	123	190	29.83	29.95	- .05	73.3	-0.5	92	24	81	59	14	68	24	63	73	6.19 + 1.6	10 4,742 se.	31 sw.	21 12 6 13 5.4			
Reading.	325	81	98	29.61	29.95	- .05	70.8	-1.1	90	24	80	54	29	62	27	64	60	73	7.51 + 3.0	12 4,133 se.	21 sw.	24 5 11 15 6.5		
Schroon.	805	111	119	29.12	29.97	- .03	67.6	-1.7	82	24	77	47	9	58	39	61	58	77	2.30 + 2.0	13 4,488 n.	23 sw.	13 11 11 9 4.6		
Atlantic City.	52	37	48	29.89	29.94	- .06	72.0	-0.6	91	24	78	58	26	66	64	64	60	71	4.97 + 2.3	14 4,099 sw.	35 e.	13 14 8 9 4.6		
Cape May.	18	13	49	29.80	29.98	- .02	73.4	-0.0	92	24	80	59	9	67	23	66	60	83	12.60 + 8.3	14 4,370 sw.	36 n.	14 9 14 8 4.6		
Sandy Hook.	22	10	57	29.92	29.94	- .04	71.1	-0.7	89	24	77	50	20	65	63	63	73	5.70 + 1.1	11 9,908 sw.	51 n.	14 6 16 7 4.6			
Trenton.	190	159	183	29.74	29.94	- .05	70.6	-0.7	90	24	79	55	25	62	64	61	76	4.82 + 0.2	11 6,786 w.	29 sw.	21 12 12 7 4.7			
Baltimore.	123	100	113	29.83	29.96	- .05	74.6	-0.1	91	24	80	54	13	60	27	67	63	72	6.45 + 2.2	10 9,432 sw.	36 ne.	5 13 16 2 4.7		
Washington.	112	62	85	29.94	29.95	- .06	73.6	-0.9	93	24	83	55	10	64	27	66	63	75	3.41 + 1.0	10 3,874 nw.	26 ne.	13 12 12 7 4.6		
Lynchburg.	681	153	188	29.25	29.98	- .04	73.9	-0.9	92	5	84	52	27	64	66	63	74	3.03 + 1.2	10 3,848 sw.	36 nw.	13 9 14 4 4.7			
Norfolk.	91	170	205	29.85	29.97	- .03	76.6	-0.1	93	24	84	59	27	65	66	63	76	3.47 + 2.5	13 8,567 sw.	30 nw.	13 8 12 11 6.1			
Richmond.	144	11	52	29.82	29.97	- .04	75.0	-0.5	92	24	85	53	27	68	66	63	78	2.62 + 1.8	11 4,641 sw.	21 w.	21 12 11 8 4.9			
Wytheville.	2,293	49	55	27.68	29.99	- .02	68.6	-0.9	90	7	79	47	25	62	69	78	1.40	- 3.1	13 3,032 w.			5.8		
<i>South Atlantic States.</i>							78.3 + 0.5									80	5.15 - 1.0							
Asheville.	2,255	70	84	27.73	30.02	- .00	71.1	+ 0.6	91	7	81	50	27	62	28	64	61	79	1.77 - 3.0	13 4,164 nw.	26 se.	11 6 17 8 5.4		
Charlotte.	773	153	161	29.18	29.99	- .03	77.0	+ 0.4	91	8	88	60	27	68	25	66	73	94	1.6 - 1.6	11 6,292 sw.	20 n.	31 1 21 9 7.0		
Hatteras.	11	12	50	29.97	29.98	- .02	78.6	+ 0.4	89	24	84	68	4	73	17	73	70	79	1.27	10 2,920 sw.	43 w.	13 8 17 6 5.3		
Raleigh.	376	103	110	29.58	29.98	- .03	78.9	+ 0.1	93	83	86	60	3	67	24	69	66	75	4.83 + 1.0	12 5,079 sw.	31 w.	31 10 12 9 5.3		
Wilmington.	78	81	91	29.92	30.00	- .00	78.3	+ 0.3	95	1	86	64	3	70	20	70	72	5.2	+ 1.0	10 4,972 sw.	20 c.	12 9 18 4 4.6		
Charleston.	48	11	92	29.96	30.01	- .00	81.0	+ 0.7	97	1	88	67	13	74	19	72	78	5.70 + 1.3	11 6,564 sw.	29 se.	11 7 12 12 5.7			
Columbia, S. C.	351	41	57	29.64	30.01	- .00	78.8	-0.7	95	7	88	63	27	70	24	70	68	70	1.31	11 3,981 sw.	39 sw.	14 5 11 12 6.4		
Augusta.	180	62	77	29.80	30.00	- .01	79.6	+ 0.7	95	1	88	62	27	71	26	72	70	81	2.89 + 2.7	9 3,528 sw.	31 sw.	21 6 11 14 6.5		
Savannah.	65	150	194	29.95	30.02	+ .01	80.4	+ 1.0	94	1	88	65	13	72	26	73	73	82	3.83 + 5.4	12 7,039 sw.	36 n.	19 4 13 12 6.7		
Jacksonville.	43	200	245	29.99	30.04	+ .03	81.5	+ 1.4	94	21	89	68	17	74	20	75	74	85	6.98 + 0.8	16 7,455 sw.	45 nw.	17 11 17 3 4.8		
Greenville, S. C.	1,013	113	122	28.92	29.99	- .00	76.2		93	8	85	61	27	68	24	68	66	78	4.31	- .00	13 4,378 w.	46 n.	1 4 18 9 6.3	
<i>Florida Peninsula.</i>							83.2 + 0.7									75	2.94 - 4.0							
Key West.	22	10	64	30.01	30.04	+ .06	84.2	+ 0.4	92	28	89	75	24	79	15	77	74	73	1.46 - 3.2	12 5,889 se.	31 se.	11 15 13 3 4.2		
Miami.	25	79	90	30.04	30.07	- .00	82.6	+ 0.6	92	2	88	74	21	77	16	76	75	73	2.73 - 3.9	12 4,875 se.	31 sw.	12 4 19 8 5.7		
Tampa.	35	79	92	30.02	30.05	+ .05	82.7	+ 1.2	95	21	90	70	31	75	20	75	73	78	3.63 - 5.0	13 3,515 sw.	31 sw.	31 4 14 13 6.5		
<i>East Gulf States.</i>							79.8 + 0.7									83	7.77 - 0.3							
Atlanta.	1,174	190	216	28.82	30.03	+ .03	76.4	+ 0.3	94	7	84	64	27	68	24	70	68	80	3.80 - 0.7	16 6,473 w.	42 w.	18 5 7 19 7.1		
Macón.	370	78	87	29.63	30.02	+ .01	78.8	+ 0.6	95	6	88	61	27	70	26	72	70	82	4.98 + 0.7	15 3,178 sw.	27 w.	22 4 18 9 6.0		
Thomasville.	273	49	58	29.74	30.03	+ .03	80.8	-0.1	94	29	80	66	13	72	21	71	55	66	3.94 + 3.1	20 2,502 sw.	20 sw.	17 5 12 14 6.5		
Pensacola.	5																							

TABLE I.—Climatological data for Weather Bureau Stations, August, 1919—Continued.

Districts and stations.	Elevation of instruments.			Pressure.			Temperature of the air.						Precipitation.			Wind.			Average cloudiness, zeniths.										
	Barometer above sea level,	Thermometer above ground,	Anerometer above ground.	Station, reduced to mean of 24 hours.	Sealevel, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Mean minimum.	Greatest daily range.	Total.	In. + 1.1	Miles	Total movement.	Prevailing direction.	Maximum velocity.									
	Ft.	Ft.	Ft.	In.	In.	In.	° F. 74.0 - 0.5	° F.	° F.	° F.	In.	In.	° F.	%	In. +	In.	Miles per hour.	Direction.	Date.	Cloudy days.	Average cloudiness, zeniths.	Total snowfall.							
<b>Ohio Valley and Tennessee.</b>																					0-10	In.	In.						
Chattanooga.....	762	189	213	29.23	30.02	+ .02	77.5 + 1.0	98	786	59	27	69	24	69	66	74	4.71 + 1.0	13	5,366	w.	37	e.	7	6	13	12	6.1	4.8	
Knoxville.....	996	102	111	23.97	30.00	- .00	76.0 + 1.3	95	785	60	27	67	26	68	65	77	4.67 + 0.7	15	4,056	sw.	30	s.	17	7	17	7	5.6	4.0	
Memphis.....	399	76	97	29.01	30.03	+ .05	86.4 + 1.2	97	783	64	31	72	23	72	69	72	5.82 + 2.4	10	5,707	sw.	30	sw.	29	18	7	6	3.9	3.9	
Nashville.....	546	165	191	29.44	30.01	+ .01	77.6 + 0.2	95	686	61	31	69	26	69	65	72	6.80 + 3.3	11	5,328	w.	31	10	14	10	7	4.9	4.9	4.9	
Lexington.....	989	193	230	28.95	30.00	- .01	73.5 + 1.1	91	682	58	9	65	29	62	60	72	2.38 + 1.2	8	8,091	sw.	42	nw.	20	16	9	6	3.8	3.8	
Louisville.....	525	219	255	29.43	30.00	- .00	75.8 + 0.7	94	885	60	11	66	27	67	62	69	1.57 + 1.9	6	7,247	sw.	54	w.	20	20	4	7	3.6	3.6	
Evansville.....	431	139	175	29.54	30.00	+ .01	77.2 + 0.2	98	687	59	31	67	24	67	62	66	2.49 + 0.8	11	6,786	sw.	53	nw.	1	9	18	4	4.4	4.4	
Indianapolis.....	822	194	230	29.11	29.98	- .02	73.4 + 0.2	95	683	55	31	64	25	64	59	67	3.33 + 0.1	10	7,285	sw.	52	w.	24	12	16	3	4.1	4.1	
Terre Haute.....	575	96	129	29.36	29.97	- .00	74.2 + 0.2	97	485	54	31	64	30	64	59	65	1.80 + 0.3	8	6,793	sw.	33	nw.	6	8	20	3	4.6	4.6	
Cincinnati.....	828	11	51	28.32	29.98	- .03	73.2 + 1.6	94	15	84	53	29	62	30	62	72	0.92 + 2.4	10	4,750	sw.	29	nw.	21	15	12	4	4.0	4.0	
Columbus.....	824	173	222	29.12	29.98	- .03	70.6 + 2.4	91	51	56	10	61	27	53	64	70	3.71 + 0.5	13	7,402	sw.	53	nw.	10	9	15	7	4.9	4.9	
Dayton.....	599	181	216	29.01	29.94	- .03	71.5 + 2.1	93	15	81	53	28	62	31	63	71	3.12 + 0.1	11	6,092	sw.	57	w.	16	14	13	3	3.9	3.9	
Pittsburgh.....	842	353	410	29.05	29.97	- .04	70.0 + 2.0	88	16	77	45	29	32	61	59	85	3.03 + 0.6	15	2,967	w.	26	w.	18	7	11	13	6.4	5.7	
Elkins.....	1,940	41	50	27.99	29.99	- .03	64.4 + 2.0	88	16	77	50	23	62	56	83	4.60 + 1.1	13	3,029	sw.	30	w.	17	11	9	11	5.7	5.7		
Parkersburg.....	638	77	82	29.35	30.00	- .01	72.1 + 0.9	94	782	50	23	62	33	64	61	73	4.60 + 1.1	13	3,029	sw.	30	w.	17	11	9	11	5.7	5.7	
<b>Lower Lake Region.</b>							68.7 - 0.9									70	3.96 + 1.0									5.4			
Buffalo.....	767	247	280	29.12	29.93	- .06	66.9 + 1.0	86	18	73	52	25	61	21	61	57	74	3.04 + 0.1	12	10,488	sw.	46	nw.	25	5	11	15	6.5	
Canton.....	448	10	61	29.42	29.89	- .05	65.3 + 2.5	85	21	73	59	26	31	61	58	76	2.60 + 0.1	15	8,188	sw.	38	sw.	21	10	10	11	5.4		
Oswego.....	335	76	91	29.55	29.91	- .08	66.4 + 2.4	88	73	51	16	60	22	61	58	76	4.14 + 1.4	12	4,546	sw.	27	ne.	1	7	9	15	6.1		
Rochester.....	523	97	113	29.38	29.94	- .05	67.8 + 0.5	91	78	52	19	61	24	60	56	72	3.60 + 0.6	12	5,552	sw.	31	w.	16	8	18	10	5.7		
Syracuse.....	597	97	113	29.31	29.94	- .05	66.6 + 2.0	87	71	50	9	59	23	59	66	72	2.00 + 1.3	13	6,837	sw.	34	sw.	24	6	15	10	5.9		
Erie.....	714	139	166	29.18	29.94	- .06	69.2 + 0.7	88	16	78	54	27	62	57	70	64	4.64 + 1.4	11	9,321	s.	42	se.	13	5	19	7	5.7		
Cleveland.....	762	190	201	29.14	29.95	- .06	69.3 + 0.8	87	16	78	54	27	63	57	62	65	5.37 + 2.0	12	7,890	sw.	48	w.	30	10	16	5	5.3		
Sinclair.....	629	62	103	29.27	29.94	- .07	71.2 + 0.3	91	52	59	23	63	27	62	57	65	4.54 + 1.9	10	8,759	sw.	53	w.	30	8	19	5	5.4		
Toledo.....	628	208	243	29.28	29.96	- .04	71.2 + 0.2	93	48	82	53	28	61	57	65	65	1.81 + 0.5	8	5,952	sw.	27	nw.	5	10	18	3	4.5		
Fort Wayne.....	858	113	124	29.06	29.97	- .05	71.2 + 0.2	93	48	82	53	28	61	57	65	67	2.49 + 0.3	9	7,134	w.	36	sw.	21	9	18	4	4.8		
Detroit.....	730	218	245	29.17	29.95	- .05	70.2 + 0.3	89	23	79	52	23	61	57	65	67	2.49 + 0.3	9	7,134	w.	40	nw.	6	11	13	7	4.4		
<b>Upper Lake Region.</b>							66.9 + 0.7									73	2.04 - 0.9									4.9			
Alpena.....	608	13	92	29.26	29.92	- .08	64.5 + 0.7	86	23	73	43	29	54	39	60	57	77	2.53 - 0.8	9	7,850	nw.	33	nw.	25	3	14	14	6.2	
Escanaba.....	612	54	60	29.27	29.92	- .07	64.6 + 0.1	84	15	73	44	9	53	56	76	2.49 + 1.1	7	6,184	s.	27	sw.	1	11	15	5	4.5			
Grand Haven.....	632	54	89	29.27	29.93	- .08	67.0 + 0.5	82	22	74	47	29	60	29	62	59	74	1.49 + 1.1	11	7,407	w.	32	w.	21	17	8	6	3.9	
Houghton.....	707	70	87	29.19	29.93	- .07	69.8 + 0.2	82	23	78	50	23	63	60	61	66	1.37 + 0.9	12	4,925	nw.	24	nw.	10	15	7	6	4.7		
Lansing.....	684	62	99	29.17	29.93	- .08	65.0 + 1.7	87	18	73	45	29	55	36	61	58	74	2.28 + 0.6	8	7,077	w.	35	w.	21	8	10	13	6.2	
Dundee.....	637	66	66	29.25	29.94	- .06	67.3 + 1.3	87	23	73	47	9	50	57	74	1.47 + 1.4	10	3,301	sw.	18	nw.	25	7	20	4	5.2			
Marquette.....	734	77	111	29.13	29.92	- .06	62.2 + 1.7	87	20	72	47	9	52	57	74	1.47 + 1.4	12	7,430	w.	37	nw.	20	9	16	5	5.5			
Port Huron.....	638	79	120	29.25	29.94	- .07	67.4 + 0.1	80	23	77	47	9	52	57	74	2.29 + 0.2	12	7,430	w.	37	nw.	20	9	16	5	5.1			
Saginaw.....	641	89	77	29.25	29.93	- .09	67.4 + 0.1	88	23	73	48	27	57	39	60	58	72	1.63 + 1.2	9	5,102	nw.	28	sw.	20	10	16	5	4.6	
Sault Ste. Marie.....	641	11	52	29.22	29.90	- .09	63.0 + 2.4	87	62	43	9	55	31	59	57	73	1.69 + 2.0	11	6,031	nw.	35	nw.	25	7	10	14	6.2		
Chicago.....	823	140	310	29.09	29.96	- .04	74.3 + 2.2	85	41	81	28	65	33	63	61	71	1.10 + 1.8	7	8,186	s.	31	s.	29	15	14	12	3.5		
Green Bay.....	617	106	144	29.26	29.92	- .07	67.5 + 1.2	86	14	77	49	27	55	60	62	73	1.80 + 1.5	10	7,318	sw.	36	s.	15	12	13	6	5.1		
Milwaukee.....	681	119	133	29.22	29.95	- .05	70.4 + 3.4	89	14	78	52	27	62	23	62	63	74	1.87 + 1.0	7	6,777	w.	27	ne.	1	19	10	2	3.5	
Duluth.....	1,133	11	47	28.72	29.92	- .05	65.0 + 0.1	84	10	74	46	27	56	53	55	74	2.00 + 0.5	15	8,345	nw.	40	nw.	6	11	13	7	4.4		
<b>North Dakota.</b>							68.7 + 2.0									62	1.80 - 0.5									3.1			
Moorhead.....	940	8	57	28.95	29.95	- .01	63.2 + 2.3	93	19																				

TABLE I.—Climatological data for Weather Bureau Stations, August, 1919—Continued.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during August, 1919, at all stations furnished with self-registering gauges.

Stations.	Date.	Total duration.		Total amount of precipita- tion.	Excessive rate.		Amount be- fore excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Abilene, Tex.	20	5:37 p.m.	6:04 p.m.	2.02	5:41 p.m.	5:56 p.m.	0.01	0.32	0.47	0.60											0.65
Albany, N. Y.	19	5:37 p.m.	9:25 a.m.	0.62	7:28 a.m.	7:53 a.m.	0.01	0.09	0.18	0.42	0.66	0.75									
Alpena, Mich.	23	D. N. a.m.	5:20 a.m.	0.98	2:34 a.m.	2:50 a.m.	0.09	0.09	0.23	0.30	0.41	0.55	0.58								
Amarillo, Tex.	9	D. N. a.m.	10:00 p.m.	0.91	3:52 p.m.	4:36 p.m.	0.02	0.08	0.24	0.32	0.42	0.60	0.83	1.14	1.29	1.35					
Anniston, Ala.	23	3:28 p.m.		1.88																	
Asheville, N. C.	11-12			0.81																	
Atlanta, Ga.	18	4:35 p.m.	5:30 p.m.	0.68	5:07 p.m.	5:22 p.m.	0.16	0.18	0.34	0.51											
					2:52 p.m.	3:12 p.m.	1.92	0.05	0.10	0.15	0.22	0.26	0.32	0.40	0.47	0.54	0.61				
					3:42 p.m.	4:32 p.m.		0.70	0.83	0.98	1.11	1.24	1.37	1.53	1.65	1.72	1.78				
Atlantic City, N. J.	13-14	5:30 a.m.	7:30 a.m.	8.70	5:22 p.m.	5:22 p.m.		1.81	1.87	1.92	1.98	2.03	2.08	2.13	2.19	2.26	2.33				
					6:12 p.m.	7:02 p.m.		2.42	2.51	2.36	2.65	2.78	2.91	3.05	3.17	3.34	3.49				
					7:02 p.m.	7:52 p.m.		3.66	3.90	4.06	4.21	4.41	4.56	4.70	4.76	4.83	4.90				
					7:52 p.m.	8:12 p.m.		5.30	5.38	5.56	5.65										
Augusta, Ga.	6			0.44																	0.44
Baker, Oreg.	3			0.39																	0.38
Baltimore, Md.	6	2:15 p.m.	5:38 p.m.	1.36	4:12 p.m.	4:39 p.m.	0.04	0.16	0.58	1.04	1.20	1.27	1.30								
Bentonville, Ark.	21	5:32 p.m.	7:45 a.m.	0.84	6:23 p.m.	6:38 p.m.	0.01	0.26	0.67	0.81											
Binghamton, N. Y.	15-16	10:40 p.m.	5:15 a.m.	1.64	3:23 a.m.	3:40 a.m.	0.76	0.20	0.39	0.66	0.79										
Birmingham, Ala.	21	7:55 p.m.	9:30 p.m.	0.77	9:15 p.m.	9:33 p.m.	0.19	0.10	0.24	0.45	0.58										
Bismarck, N. Dak.	23	12:48 p.m.	5:15 a.m.	0.90	2:12 p.m.	2:34 p.m.	0.01	0.15	0.41	0.62	0.72	0.75									
Block Island, R. I.	4	7:20 a.m.	S.15 a.m.	0.89	7:23 a.m.	7:43 a.m.	0.01	0.23	0.53	0.69	0.79										
Boise, Idaho.	13-14			1.42	T.																0.12
Boston, Mass.	8				T.																T.
Buffalo, N. Y.	14			1.85																	0.53
Burlington, Vt.	30			0.60																	0.54
Cairo, Ill.	24	6:40 a.m.	11:30 a.m.	1.04	7:52 a.m.	8:17 a.m.	0.01	0.29	0.44	0.50	0.55	0.60									
Canton, N. Y.	13-16	6:14 p.m.	7:38 p.m.	1.02	6:22 p.m.	6:53 p.m.	0.01	0.09	0.40	0.71	0.84	0.90	0.98	1.00							
Charles City, Iowa.	21			0.50																	0.42
Charleston, S. C.	21			1.01																	0.60
Charlotte, N. C.	10	1:30 p.m.	3:50 p.m.	1.04	2:17 p.m.	2:49 p.m.	0.04	0.18	0.36	0.50	0.65	0.72	0.82	0.87							
Chattanooga, Tenn.	16	5:52 p.m.	S.05 p.m.	1.07	6:03 p.m.	6:12 p.m.	0.01	0.43	0.75												
Cheyenne, Wyo.	9			0.56																	0.56
Chicago, Ill.	17			0.16																	0.16
Cincinnati, Ohio.	5			0.43																	0.16
Cleveland, Ohio.	4	8:24 p.m.	10:20 p.m.	1.23	8:54 p.m.	9:24 p.m.	0.03	0.08	0.29	0.54	0.69	0.83	0.96								
	5	2:33 p.m.	3:09 p.m.	0.59	2:33 p.m.	2:59 p.m.	0.01	0.20	0.28	0.41	0.44	0.54	0.57								
Columbia, Mo.	5	3:59 p.m.	8:36 p.m.	2.20	4:18 p.m.	4:47 p.m.	0.01	0.12	0.37	0.81	1.15	1.61	1.89								
Columbia, S. C.	7	12:16 a.m.	7:18 a.m.	1.31	4:46 a.m.	5:03 a.m.	0.47	0.15	0.38	0.52	0.55										
Columbus, Ohio.	8	6:23 p.m.	D. N. a.m.	1.09	7:13 p.m.	7:28 p.m.	0.02	0.05	0.21	0.48	0.73	0.81									
Concord, N. H.	4-5	9:10 p.m.	D. N. a.m.	0.82	5:28 p.m.	5:53 p.m.	0.01	0.07	0.15	0.33	0.43	0.51									
Concordia, Kans.	24			0.35	D. N. a.m.	9:19 p.m.	9:40 p.m.	0.02	0.13	0.52	0.92	1.23									0.20
Corpus Christi, Tex.	12	3:12 p.m.		3:50 p.m.	0.58	3:21 p.m.	3:46 p.m.	0.03	0.07	0.17	0.25	0.45	0.55								0.09
Dallas, Tex.	22	8:19 a.m.	12:36 p.m.	1.60	11:51 a.m.	12:28 p.m.	0.44	0.16	0.26	0.38	0.64	0.83	0.90	1.11	1.18						
Davenport, Iowa.	6	12:15 p.m.	2:00 p.m.	1.21	12:19 a.m.	12:53 p.m.	0.03	0.13	0.32	0.68	0.92	1.01	1.08	1.13							
Dayton, Ohio.	16	9:00 p.m.	10:30 p.m.	1.09	9:05 p.m.	9:22 p.m.	0.03	0.35	0.74												
Del Rio, Tex.	21	10:10 a.m.	12:14 p.m.	0.65	10:19 a.m.	10:28 a.m.	0.01	0.42	0.52												
Denver, Colo.	21	6:20 a.m.	D. N. a.m.	1.00	5:02 a.m.	5:22 a.m.	0.44	0.14	0.28	0.42	0.55										
Des Moines, Iowa.	3			0.70																	0.56
Detroit, Mich.	4	5:30 p.m.	7:35 p.m.	0.69	7:00 p.m.	7:15 p.m.	0.01	0.23	0.49	0.64											0.56
Devils Lake, N. Dak.	2	8:17 p.m.	D. N. p.m.	0.93	8:22 p.m.	8:47 p.m.	0.01	0.31	0.55	0.61	0.69	0.89									
Dodge City, Kans.	19	5:25 p.m.	D. N. p.m.	1.02	5:40 p.m.	6:20 p.m.	0.04	0.14	0.31	0.42	0.49	0.51	0.54	0.63	0.71						
Drexel, Nebr.	10-11			1.06																	(*)
Dubuque, Iowa.	13			0.83																	0.28
Duluth, Minn.	28			0.66																	0.26
Eastport, Me.	22			0.46																	0.31
Elkins, W. Va.	18			0.55																	0.35
Ellendale, N. Dak.	28			0.29																	0.29
El Paso, Tex.	19			0.31																	0.19
Erie, Pa.	18	10:07 a.m.	10:54 a.m.	0.75	10:11 a.m.	10:31 a.m.	0.01	0.24	0.35	0.65	0.74										
Escanaba, Mich.	30	D. N. a.m.	6:10 a.m.	0.79	4:23 a.m.	4:52 a.m.	0.12	0.13	0.23	0.26	0.38	0.46	0.51								0.32
Eureka, Calif.	3			0.48																	T.
Evansville, Ind.	1	10:28 a.m.	11:52 a.m.	1.41	10:32 a.m.	10:56 a.m.	0.01	0.33	0.47	0.93	1.32	1.38									
Flagstaff, Ariz.	1			1.34																	(*)
Fort Smith, Ark.	17-18	5:04 a.m.	7:33 a.m.	1.37	5:14 a.m.	5:31 a.m.	0.01	0.19	0.48	0.64	0.68										
Fort Wayne, Ind.	16	10:17 p.m.	D. N. a.m.	1.42	11:58 p.m.	12:38 a.m.	0.29	0.15	0.45	0.56	0.61	0.70	0.81	0.85	0.95						
Fort Worth, Tex.	10	11:43 a.m.	2:12 p.m.	0.80	12:03 p.m.	12:17 p.m.	0.01	0.17	0.47	0.60											
Fresno, Calif.	(†)			0.58																	0.73
Galveston, Tex.	21	D. N. a.m.	D. N. a.m.	0.66	2:42 a.m.	2:50 a.m.	0.01	0.46	0.63												(†)
Grand Haven, Mich.	4			0.61																	0.22
Grand Junction, Colo.	1			0.18																	0.14
Grand Rapids, Mich.	4	8:55 p.m.	D. N. p.m.	0.72	10:33 p.m.	10:55 p.m.	0.02	0.17	0.32	0.46	0.60	0.67									
Green Bay, Wis.	4			0.52																	0.31
Greenville, S. C.	1	3:53 p.m.	5:55 p.m.	0.86	3:59 p.m.	4:14 p.m.	0.01	0.14	0.45	0.74											
Hannibal, Mo.	6-7	4:00 p.m.	D. N. p.m.	1.41	5:35 p.m.	6:15 p.m.	0.17	0.11	0.17	0.21	0.30	0.69	0.75	0.86	0.96						
Havre, Mont.	1	0.08		0.79	11:27 p.m.	12:06 a.m.	0.01	0.07	0.11	0.18	0.23	0.35	0.42	0.55	0.60						
Helena, Mont.	1			0.08	11:21 a.m.	10:46 a.m.	0.01	0.22	0.51	0.68	0.73										0.04
Houghton, Mich.	13	3:00 p.m.	3:30 p.m.	0.55	3:06 p.m.	3:28 p.m.	0.03	0.10	0.31	0.53	0.59										
Houston, Tex.	23	10:35 a.m.		0.74	10:46 a.m.	11:04 a.m.	0.01	0.22	0.51	0.68	0.73										
Huron, S. Dak.	12			1.03																	0.80
Independence, Cal.	(†)			0.48																	
Indianapolis, Ind.	24	2:51 p.m.</																			

\* Self-register not in use.

**†** No precipitation occurred during month.

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during August, 1919, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precip.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.														
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.	
Jacksonville, Fla.	3	D. N. a.m.	D. N. a.m.	0.54	2:01 a.m.	2:23 a.m.	0.01	0.19	0.31	0.38	0.48	0.51	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	12	2:29 p.m.	10:40 p.m.	1.01	3:18 p.m.	3:33 p.m.	0.03	0.38	0.60	0.71	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	14	12:40 p.m.	4:50 p.m.	1.07	1:44 p.m.	1:53 p.m.	0.34	0.38	0.61	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Kalispell, Mont.	17	12:12 p.m.	12:20 p.m.	0.77	12:15 p.m.	12:27 p.m.	0.01	0.42	0.72	0.76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.46	
	2			0.46																		
	27-28	8:45 p.m.	D. N. a.m.	2.39	10:11 p.m.	11:37 p.m.	0.32	0.10	0.13	0.18	0.35	0.55	0.65	0.68	0.69	0.71	0.74	0.90	1.10	1.27		
Kansas City, Mo.	28	8:20 a.m.	12:25 p.m.	2.50	9:06 a.m.	9:56 a.m.	0.20	0.05	0.11	0.22	0.30	0.31	0.33	0.51	0.60	0.70	0.81	.....	.....	.....	.....	
					10:46 a.m.	11:25 a.m.	.....	0.94	0.97	1.00	1.06	1.17	1.31	1.42	1.47	1.55	1.69	.....	.....	.....	.....	
Keokuk, Iowa	6	8:55 p.m.	12 mida.	1.52	9:07 p.m.	10:01 p.m.	0.03	0.06	0.11	0.19	0.36	0.45	0.54	0.68	0.85	1.01	1.24	1.36	.....	.....	.....	
	12	9:25 a.m.	10:05 a.m.	1.06	9:29 a.m.	9:50 a.m.	0.02	0.30	0.59	0.74	0.75	0.87	1.01	.....	.....	.....	.....	.....	.....	.....	0.36	
Key West, Fla.	10			0.36																		0.36
	1	11:02 a.m.	12:20 p.m.	0.93	11:04 a.m.	11:18 a.m.	0.01	0.37	0.77	0.85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	11	6:22 p.m.	7:45 p.m.	1.73	6:25 p.m.	7:11 p.m.	0.01	0.18	0.66	1.15	1.39	1.45	1.46	1.48	1.53	1.65	1.70	.....	.....	0.49	0.25	
Knoxville, Tenn.	15			0.49																		
	1			0.25																		
	1			0.40																		0.35
Lander, Wyo.	4-5	6:19 p.m.	D. N. a.m.	1.75	8:00 p.m.	8:27 p.m.	0.82	0.11	0.20	0.36	0.40	0.53	0.62	.....	.....	.....	.....	.....	.....	.....	0.06	
	3			0.11																		
	21			0.40																		
Lansing, Mich.	4	7:07 p.m.	8:25 p.m.	0.94	7:33 p.m.	8:00 p.m.	0.01	0.18	0.45	0.64	0.75	0.83	0.87	.....	.....	.....	.....	.....	.....	.....	.....	
	12	5:44 a.m.	8:12 a.m.	1.64	6:09 a.m.	8:58 a.m.	0.03	0.16	0.26	0.37	0.49	0.63	0.91	1.22	1.38	1.43	1.50	.....	.....	.....	.....	
	25	7:30 p.m.	T	0.83	7:38 p.m.	7:55 p.m.	0.01	0.16	0.41	0.68	0.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	T.	
Los Angeles, Calif.	16			0.22																		
	13	8:04 p.m.	10:25 p.m.	1.13	8:58 p.m.	9:24 p.m.	0.15	0.21	0.42	0.60	0.68	0.74	0.78	.....	.....	.....	.....	.....	.....	.....	0.22	
	29			0.21																		0.61
Ludington, Mich.	5			1.26																		
	11	5:21 p.m.	9:15 p.m.	1.58	5:32 p.m.	6:22 p.m.	0.01	0.15	0.47	0.74	0.83	0.90	1.02	1.12	1.23	1.33	1.39	.....	.....	.....	.....	
	31	5:58 p.m.	7:20 p.m.	0.89	6:13 p.m.	6:44 p.m.	0.11	0.13	0.28	0.33	0.43	0.58	0.68	0.72	.....	.....	.....	.....	.....	.....	0.23	
Madison, Wis.	17			0.34																		0.41
	29			0.64																		0.15
	15			0.21																		
Meridian, Miss.	3	3:28 p.m.	D. N. p.m.	1.92	3:30 p.m.	4:03 p.m.	0.01	0.29	0.49	0.98	1.26	1.42	1.53	1.59	.....	.....	.....	.....	.....	.....	.....	
	14	7:15 p.m.	D. N. p.m.	1.05	7:22 p.m.	7:45 p.m.	0.01	0.22	0.50	0.70	0.85	0.92	.....	.....	.....	.....	.....	.....	.....	.....	2.71	
	18	3:20 p.m.	4:40 p.m.	3.08	3:22 p.m.	4:32 p.m.	0.01	0.15	0.47	0.73	1.33	1.62	1.79	1.81	2.04	2.36	2.52	2.71	3.07			
Miami, Fla.	8			0.28																		
	10-11	D. N. p.m.	6:15 a.m.	1.09	3:50 p.m.	4:13 p.m.	0.13	0.15	0.19	0.34	0.39	0.66	.....	.....	.....	.....	.....	.....	.....	.....		
	4	8:50 p.m.	D. N. p.m.	0.88	8:56 p.m.	9:17 p.m.	0.01	0.24	0.52	0.71	0.78	0.83	.....	.....	.....	.....	.....	.....	.....	.....		
Milwaukee, Wis.	6	8:50 a.m.	9:55 a.m.	0.80	9:04 a.m.	9:33 a.m.	0.02	0.08	0.26	0.36	0.52	0.61	0.71	0.76	.....	.....	.....	.....	.....	.....		
	12	11:34 a.m.	1:10 p.m.	1.23	11:37 a.m.	12:11 p.m.	0.01	0.10	0.21	0.61	0.82	0.98	1.09	1.14	.....	.....	.....	.....	.....	.....		
	27			0.34																		0.34
Montgomery, Ala.	8	2:28 p.m.	3:30 p.m.	0.79	2:28 p.m.	2:47 p.m.	0.00	0.15	0.41	0.68	0.76	.....	.....	.....	.....	.....	.....	.....	.....	.....		
	16	6:48 p.m.	D. N. p.m.	1.73	6:50 p.m.	7:55 p.m.	0.01	0.12	0.24	0.64	0.80	0.88	0.91	0.91	0.91	0.92	0.94	1.40	1.67			
	24	3:15 p.m.	5:30 p.m.	1.11	4:50 p.m.	5:10 p.m.	0.13	0.14	0.41	0.79	0.94	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.86	
Moorhead, Minn.	6			0.67																		
	25			T.																		0.59
	21			2.33																		
Nashville, Tenn.	29	8:15 p.m.	D. N. p.m.	1.17	8:19 p.m.	8:31 p.m.	0.01	0.52	0.86	0.97	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
	30	4:40 p.m.	5:00 a.m.	1.09	5:10 p.m.	5:32 p.m.	0.03	0.24	0.53	0.68	0.76	0.80	.....	.....	.....	.....	.....	.....	.....	.....		
	31	1:48 a.m.	2:20 a.m.	0.84	1:40 a.m.	2:03 a.m.	0.06	0.07	0.28	0.41	0.53	0.53	.....	.....	.....	.....	.....	.....	.....	.....		
New Haven, Conn.	30	4:47 p.m.	7:40 p.m.	1.00	5:05 p.m.	5:44 p.m.	0.08	0.05	0.10	0.19	0.45	0.57	0.71	0.75	0.93	.....	.....	.....	.....	.....		
	13	5:05 p.m.	7:23 p.m.	0.61	5:18 p.m.	5:34 p.m.	0.01	0.15	0.35	0.49	0.52	0.56	0.63	0.67	0.72	0.75	0.82	0.88	0.91	0.94		
	18	12:29 p.m.	2:49 p.m.	0.73	12:29 p.m.	1:03 p.m.	0.00	0.11	0.28	0.39	0.41	0.44	0.55	0.67	0.72	0.75	0.78	0.81	0.84	0.87		
New Orleans, La.	23	4:57 p.m.	7:16 p.m.	0.80	4:59 p.m.	5:10 p.m.	0.01	0.25	0.58	0.61	0.66	0.71	0.77	0.81	0.85	0.89	0.93	0.97	1.01	1.05		
	24	3:07 p.m.	4:10 p.m.	1.13	3:34 p.m.	3:48 p.m.	0.03	0.48	0.94	1.09	1.15	1.20	1.24	1.28	1.32	1.36	1.40	1.44	1.48	1.52		
	15	8:00 p.m.	8:55 p.m.	1.33	8:00 p.m.	8:50 p.m.	0.00	0.10	0.21	0.40	0.48	0.52	0.56	0.60	0.64	0.68	0.72	0.76	0.80	0.84	0.88	
New York, N. Y.	17-18	10:45 p.m.	10:45 p.m.	2.13	1:10 a.m.	1:55 a.m.	0.13	0.05	0.19	0.36	0.50	0.57	0.62	0.67	0.72	0.77	0.82	0.86	0.90	0.94	0.98	
	1			0.73																		0.10
	2			0.13																		0.33
Oklahoma, Okla.	29			0.61																		0.60
	11			0.66																		0.64
	16-17	8:18 p.m.	12:40 p.m.	1.88	8:41 p.m.	9:14 p.m.	0.01	0.09	0.27	0.43	0.50	0.54	0.63	0.65	0.67	0.71	0.74	0.78	0.80	0.82	0.85	
Palestine, Tex.	20	4:47 a.m.	5:32 a.m.	0.89	4:54 a.m.	5:22 a.m.	0.04	0.18	0.38	0.44	0.53	0.60	0.67	0.70	0.74	0.78	0.80	0.83	0.86	0.89	0.92</	

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during August, 1919, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Richmond, Va.	6			0.98															(*)		
Rochester, N. Y.	16-17	5:53 p.m.	D. N. a. m.	1.15	6:38 p.m.	6:46 p.m.	0.03	0.46	0.59										0.02		
Roseburg, Oreg.	31			0.02															0.31		
Roswell, N. Mex.	30			0.32														T.			
Sacramento, Calif.	28																	0.52			
Saginaw, Mich.	18			0.52																	
St. Joseph, Mo.	15	4:27 p.m.	5:44 p.m.	0.61	4:34 p.m.	4:53 p.m.	0.01	0.12	0.39	0.50	0.55										
St. Louis, Mo.	20	10:30 a.m.	1:15 p.m.	1.10	10:52 a.m.	11:07 a.m.	T.	0.32	0.47	0.53											
St. Paul, Minn.	3	7:15 a.m.	8:55 a.m.	0.98	8:30 a.m.	8:50 a.m.	0.55	0.17	0.37	0.38											
Salt Lake City, Utah	8			0.29				0.05	0.11	0.25	0.45	0.66	0.87						0.20		
San Antonio, Tex.	18-19	10:33 p.m.	12:44 a.m.	0.77	10:35 p.m.	11:09 p.m.	0.02	0.11	0.29	0.35	0.45	0.49	0.54	0.60							
San Diego, Calif.	30			0.01															0.01		
Sandusky, Ohio.	{ 4	6:45 p.m.	9:25 p.m.	1.10	8:46 p.m.	9:13 p.m.	0.02	0.17	0.43	0.70	0.89	1.01	1.07								
Sandy Hook, N. J.	{ 4-5	10:30 p.m.	11:45 a.m.	1.62	2:13 a.m.	2:30 a.m.	0.30	0.22	0.40	0.50	0.53										
San Francisco, Calif.	6	4:05 p.m.	9:45 p.m.	1.23	7:10 p.m.	7:55 p.m.	0.11	0.06	0.13	0.24	0.50	0.78	0.90	0.95	1.01	1.08		T.	0.01		
San Jose, Calif.	28																				
San Luis Obispo, Calif.	{ 1																				
Santa Fe, N. Mex.	6	1:25 p.m.	3:55 p.m.	0.88	1:35 p.m.	T.	0.30	0.50	0.59	0.61	0.72										
Sault Ste. Marie, Mich.	21			0.40															0.18		
Savannah, Ga.	{ 11-12	1:11 p.m.	8:15 a.m.	6.07	1:18 p.m.	2:08 p.m.	0.01	0.11	0.31	0.71	0.90	1.10	1.26	1.35	1.46	1.54	1.62				
	14	3:05 p.m.	5:00 p.m.	.....	2:58 p.m.	3:44 p.m.	.....	1.73	1.88	2.16	2.55	2.84	3.99	3.23	3.54	3.81	4.03				
	30	3:50 p.m.	4:50 p.m.	0.88	3:09 p.m.	3:37 p.m.	0.01	0.24	0.37	0.46	0.63	0.75	0.79	5.12	5.18	5.22					
Scranton, Pa.	21			0.35															0.35		
Seattle, Wash.	31			0.04															0.04		
Sheridan, Wyo.	1			0.15															0.11		
Shreveport, La.	{ 9	4:40 p.m.	7:00 p.m.	0.59	4:43 p.m.	5:05 p.m.	0.01	0.14	0.24	0.38	0.50	0.55									
	24	12:30 p.m.	3:25 p.m.	1.07	12:35 p.m.	1:02 p.m.	0.01	0.17	0.36	0.55	0.71	0.83	0.87								
Sioux City, Iowa	6			1.03															0.69		
Spokane, Wash.	4			0.73															0.17		
Springfield, Ill.	6			0.31															0.28		
Springfield, Mo.	27			0.16															0.12		
Syracuse, N. Y.	17			0.39															0.28		
Tacoma, Wash.	31			0.02															0.01		
Tampa, Fla.	{ 9	4:30 p.m.	5:45 p.m.	0.70	4:47 p.m.	5:13 p.m.	0.03	0.13	0.14	0.19	0.25	0.53	0.60								
	11	1:45 p.m.	2:45 p.m.	0.78	2:02 p.m.	2:30 p.m.	0.01	0.18	0.36	0.52	0.65	0.70	0.75								
Tatoosh Island, Wash.	13			0.12															0.04		
Taylor, Tex.	22	5:50 p.m.	8:30 p.m.	0.68	6:46 p.m.	6:59 p.m.	0.06	0.25	0.42	0.54											
Terre Haute, Ind.	17			0.37															0.21		
Thomasville, Ga.	11	2:43 p.m.	6:14 p.m.	1.23	2:45 p.m.	3:19 p.m.	0.01	0.22	0.35	0.47	0.58	0.72	0.93	1.00							
	12	6:30 a.m.	1:20 p.m.	3.10	10:18 a.m.	12:11 p.m.	0.03	0.13	0.26	0.34	0.44	0.56	0.71	0.86	0.97	1.18	1.35	1.76	2.19	2.56	2.93
Toledo, Ohio.	{ 5	12:44 p.m.	5:10 p.m.	1.12	12:50 p.m.	1:15 p.m.	0.02	0.20	0.43	0.56	0.67	0.77									
	29-30	10:48 p.m.	D. N. a. m.	0.92	11:26 p.m.	11:51 p.m.	0.04	0.10	0.31	0.45	0.66	0.76									
Tonopah, Nev.	31			0.01															0.01		
Topeka, Kans.	{ 26	9:04 p.m.	D. N. p. m.	1.18	9:35 p.m.	9:48 p.m.	0.05	0.23	0.63	0.67											
	27	9:05 p.m.	D. N. p. m.	0.66	10:04 p.m.	10:25 p.m.	0.01	0.12	0.27	0.45	0.62	0.65									
Trenton, N. J.	6	3:00 p.m.	6:50 p.m.	0.65	4:20 p.m.	4:49 p.m.	0.05	0.07	0.09	0.15	0.20	0.40	0.55								
Valentine, Nebr.	3	1:30 p.m.	3:55 p.m.	1.13	1:52 p.m.	2:16 p.m.	0.01	0.15	0.37	0.68	0.93	1.02									
Vicksburg, Miss.	10	6:02 p.m.	D. N. p. m.	1.35	6:29 p.m.	7:00 p.m.	0.06	0.17	0.38	0.62	0.81	0.93	1.01								
	11	5:45 p.m.	6:30 p.m.	1.45	6:53 p.m.	6:18 p.m.	0.02	0.22	0.63	0.99	1.32	1.42									
	21	{ 3:00 p.m.	8:45 a.m.	1.29	6:18 a.m.	7:06 a.m.	0.22	0.33	0.59	0.80	0.87										
	29	3:05 p.m.	1:02	3:02 p.m.	3:25 p.m.	0.01	0.14	0.34	0.56	0.81	0.88										
Walla Walla, Wash.	3			0.06															0.02		
Washington, D. C.	17			0.88															0.67		
Wausau, Wis.	20			0.72															0.59		
Wichita, Kans.	29	4:55 p.m.	7:15 p.m.	1.13	5:01 p.m.	5:19 p.m.	0.01	0.36	0.82	1.05	1.12										
Williston, N. Dak.	5			0.29															0.27		
Wilmington, N. C.	6	10:42 a.m.	1:55 p.m.	1.68	10:51 a.m.	11:33 a.m.	0.04	0.09	0.18	0.34	0.49	0.58	0.65	0.82	0.91	0.96					
	15	7:20 p.m.	10:25 p.m.	1.08	7:34 p.m.	8:10 p.m.	0.08	0.11	0.23	0.40	0.56	0.64	0.70	0.76	0.79						
Winnemucca, Nev.	29	6:38 p.m.	9:15 p.m.	0.90	7:42 p.m.	8:06 p.m.	0.20	0.18	0.35	0.37	0.51	0.57									
Wytheville, Va.	12			0.41															T.	0.30	
Yankton, S. Dak.	3	7:15 p.m.	8:10 p.m.	0.63	7:22 p.m.	7:36 p.m.	0.01	0.28	0.50	0.59											
	10	12:15 p.m.	2:15 p.m.	0.63	12:22 p.m.	12:31 p.m.	0.02	0.36	0.50												
Yellowstone Park, Wyo.	12	4:30 a.m.	5:15 p.m.	0.54	4:32 a.m.	4:51 a.m.	0.01	0.20	0.37	0.40	0.51									0.10	

\* Self-register not in use.

† No precipitation occurred during month.

## MONTHLY WEATHER REVIEW.

AUGUST, 1919

TABLE III.—*Data furnished by the Canadian Meteorological Service, August, 1919.*

Stations.	Altitude above mean sea level, Jan. 1, 1918.	Pressure.			Temperature of the air.						Precipitation.		
		Station reduced to mean of 24 hours.	Sea level reduced to mean of 24 hours.	Departure from normal.	Mean max. + min. + 2.	Departure from normal.	Mean maximum.	Mean minimum.	Highest.	Lowest.	Total.	Departure from normal.	Total snowfall.
St. Johns, N. F.	125	Feet.	Inches.	Inches.	° F.	° F.	° F.	° F.	° F.	° F.	Inches.	Inches.	Inches.
Sydney, C. B. I.	48	29.93	29.95	+ .03	64.4	+1.1	74.0	51.9	81.0	44.0	3.93	+0.36	
Halifax, N. S.	88	29.81	29.94	- .02	62.8	+0.8	71.0	51.4	78.2	44.4	8.29	+3.94	
Yarmouth, N. S.	65	29.86	29.93	- .04	60.3	+0.6	66.4	55.2	75.5	44.2	4.86	+0.85	
Charlottetown, P. E. I.	38	29.88	29.92	- .02	65.6	+1.3	72.9	58.3	80.0	47.0	5.19	+1.45	
Chatham, N. B.	28	29.88	29.90	- .03	63.5	+0.3	73.8	53.2	85.0	43.0	2.55	-1.49	
Father Point, Que.	20	29.83	29.85	- .06	55.9	+0.3	64.1	47.8	79.0	42.6	2.94	-0.11	
Quebec, Que.	296	29.58	29.90	- .03	63.3	+0.2	71.8	54.9	79.8	43.8	3.27	-0.56	
Montreal, Que.	187	29.69	29.89	- .06	66.3	+0.1	74.1	55.5	83.9	48.2	2.56	-1.01	
Stonecliffe, Ont.	489	29.28	29.88	- .08	57.3	-5.9	77.0	37.7	90.0	28.0	2.32	-0.63	
Ottawa, Ont.	236	29.64	29.90	- .06	66.8	+2.0	77.5	56.1	90.0	43.0	1.53	-1.45	
Kingston, Ont.	285	29.61	29.91	- .07	68.1	+1.1	76.4	59.8	84.3	48.2	2.24	-0.14	
Toronto, Ont.	379	29.51	29.90	- .09	67.9	+1.9	77.8	57.9	92.2	47.6	2.17	-0.59	
Cochrane, Ont.	930	29.56	29.86	- .10	60.1	-	69.2	51.0	82.0	39.0	6.90		
White River, Ont.	1,244	28.56	29.86	- .10	57.8	+1.4	71.1	44.6	86.5	30.0	3.72	+0.42	
Port Stanley, Ont.	592	29.30	29.93	- .07	66.3	+0.4	75.8	56.8	86.2	44.3	2.18	-0.24	
Southampton, Ont.	656	29.20	29.80	- .16	65.4	+1.6	73.6	57.3	84.8	45.2	2.03	-0.17	
Parry Sound, Ont.	688	29.22	29.90	- .08	66.0	+1.5	76.0	56.0	91.0	43.0	4.40	+1.68	
Fort Arthur, Ont.	644	29.18	29.83	- .13	63.0	+3.5	73.0	53.0	82.0	39.0	2.72	-0.03	
Winnipeg, Man.	760	29.07	29.88	- .06	65.8	+2.4	77.9	53.7	93.4	36.0	3.15	+0.48	
Minnedosa, Man.	1,090	28.12	29.90	- .04	65.0	+5.6	79.1	50.9	93.0	34.0	1.03	-1.07	
Le Pas, Man.	800	27.85	29.85	- .08	65.5	+1.0	80.0	51.0	93.0	39.0	0.53	-1.06	
Qu'Appelle, Sask.	2,115	27.68	29.85	- .08	70.5	+4.8	85.3	55.8	95.0	41.0	0.06	-1.61	
Medicine Hat, Alb.	2,144	27.61	29.81	- .11	68.4	-	84.2	52.6	97.0	38.0	2.20		
Moose Jaw, Sask.	1,759	28.34	29.89	- .03	64.4	+5.5	76.8	53.1	92.0	40.0	3.14	+0.99	
Swift Current, Sask.	2,332	27.35	29.91	- .02	67.5	+3.5	82.5	53.5	92.0	40.0	3.22	+1.31	
Calgary, Alb.	3,428	26.45	29.95	+ .04	63.6	+4.2	78.0	49.1	92.0	41.0	3.80	+1.66	
Banff, Alb.	4,521	25.44	29.94	+ .03	57.9	+1.6	73.6	42.2	83.8	31.0	2.25	-0.26	
Edmonton, Alb.	2,150	27.62	29.86	- .06	61.5	+2.7	75.1	37.9	87.0	35.0	0.95	-1.18	
Prince Albert, Sask.	1,450	28.34	29.89	- .03	64.4	+5.5	76.8	53.1	92.0	40.0	3.14	+0.99	
Battleford, Sask.	1,592	28.15	29.85	- .06	64.9	+2.3	79.3	50.5	91.0	42.0	2.49	+0.13	
Kamloops, B. C.	1,202	29.79	30.04	+ .03	59.8	+0.1	66.7	50.9	80.4	37.7	0.34	-0.26	
Victoria, B. C.	230	28.79	30.04	+ .03	60.1	-	66.7	50.9	80.4	37.7	0.34	-0.26	
Barkerville, B. C.	4,180	28.34	29.89	- .03	64.4	+5.5	76.8	53.1	92.0	40.0	3.14	+0.99	
Triangle Island, B. C.	680	28.34	29.89	- .03	64.4	+5.5	76.8	53.1	92.0	40.0	3.14	+0.99	
Prince Rupert, B. C.	170	29.97	30.13	+ .03	79.0	-0.6	84.7	73.2	90.2	69.0	6.92	+0.84	
Hamilton, Ber.	151	29.97	30.13	+ .03	79.0	-0.6	84.7	73.2	90.2	69.0	6.92	+0.84	